

REMARKS

Applicant respectfully requests reconsideration of the above-identified application in view of the foregoing amendments and following remarks.

I. Status of the Claims

Claims 2-10, 26-34, and 51-59 are canceled without prejudice or disclaimer.

Claims 1, 11-14, 25, 35-38, 50, and 60-63 are amended without the introduction of new matter.

Claims 1, 11-25, 35-50 and 60-66 are pending.

II. Status of the Specification

The Specification is amended as noted above to include a paragraph relating to a cross-reference to a related application. No new matter has been added.

III. Rejection under 35 U.S.C. §101

Claims 25-49 were rejected under 35 U.S.C. §101 because the claimed invention is directed to non-statutory subject matter. In response, claim 25 is amended as suggested by the Examiner. Accordingly, the Applicant respectfully requests the withdrawal of the above rejection.

IV. Rejections under 35 U.S.C. §§102 and 103

Claims 1, 10-12, 14, 22-25, 34-36, 38, 46-50, 59-61, 63-66 and 50 were rejected under 35 U.S.C. §102(b) as anticipated by Cabral et al. (US Patent No. 5,949,424, herein “Cabral”).

Further, claims 2-9, 13, 15-21, 26-33, 37, 39-45, 51-58 and 62 were rejected under 35 U.S.C. §103(a) as unpatentable over Cabral in view of Krishnamurthy (US Patent No. 6,256,038). Claims 23, 47 and 65 were rejected under 35 U.S.C. §103(a) as unpatentable over Cabral in view of Aleksic et al. (US Patent No. 6,175,368, herein “Aleksic”). The rejections of claims 2-10, 26-34, and 51-59 are moot because those claims are canceled in this Amendment as noted above. The Applicant respectfully traverses the rejections of claims 1, 11-25, 35-50 and 60-66.

Independent claim 1 is directed to a three-dimensional data processing method and amended to include features substantially similar to those recited in original claim 10. Specifically, amended claim 1 now includes the features of “a first step in which first data showing taken images of a real existing object is acquired.” Amended claim 1 further includes the features that, “in the second step, by estimating surface reflectance properties of the object based on the first data, the bump map as a component of surface reflectance properties data showing the surface reflectance properties is generated.” Support for such features is found in the Specification, for example, at page 16, paragraph [0059] through page 17, paragraph [0062], and page 22, paragraph [0075]. Thus, according to amended claim 1, the first data shows images obtained by actually taking images of a real existing object. The surface reflectance properties of the object are estimated based on such first data to generate the bump map.

In the outstanding Office Action, the Examiner contends that features recited in original claim 10 are disclosed in Cabral at column 9, lines 35-50.¹ In this regard, Cabral describes, at column 9, lines 1-51, a surface dependent texture mapping technique. Specifically, at column 9, lines 35-50, Cabral merely describes as follows.

¹ See the outstanding Office Action at page 4, lines 6-11.

Preferably, the surface dependent texture map containing the perturbed normal vector is filtered like a simple texture using, for instance, tri-linear mipmap filtering or any other known filtering technique. The texels in the coarser levels of detail can be computed by filtering finer levels of detail and renormalizing, or by filtering the height field and computing the texels from it. Texel components can lie in a range -1 to 1. Such filtering tends to average out the bumps at large minifications, leading to artifacts at silhouette edges. Proper filtering requires computing the reflected radiance over all bumps contributing to a single pixel. This technique is impractical for hardware systems. It should also be noted that, after mipmap filtering, the texture will no longer be normalized, so the surface dependent texture map is preferably normalized prior to lighting, as described further below.

Accordingly, Cabral's mapping technique is not described as including the features of the data showing images obtained by actually taking images of a real existing object and the features of the surface reflectance properties of the object, which are estimated based on the first data to generate the bump map. Thus, Cabral fails to disclose or suggest the features of "a first step in which first data showing taken images of a real existing object is acquired" and the features of the second step in which, "by estimating surface reflectance properties of the object based on the first data, the bump map as a component of surface reflectance properties data showing the surface reflectance properties is generated," recited in amended claim 1.

With respect to the cited references of Krishnamurthy and Aleksic, neither one of those references teaches or suggests the above-discussed features of amended claim 1. Thus, amended claim 1 and claims dependent therefrom are patentably distinguishable over the cited references of Cabral, Krishnamurthy and Aleksic, either taken individually or in combination.

Independent claims 25 and 50 are each amended to incorporate features substantially similar to those recited in original claims 34 and 59, respectively. Amended claims 25 and 50, and claims dependent therefrom, are patentably distinguishable over the cited references, either taken individually or in combination, for at least the reasons advanced for amended claim 1 to the extent that amended claims 25 and 50 each include features substantially similar to the above-discussed features recited in amended claim 1.

Accordingly, the Applicant respectfully requests the withdrawal of the rejections of claims 1, 11-25, 35-50 and 60-66.

CONCLUSION

In view of the above amendments, Applicant believes the pending application is in condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

The Examiner is respectfully requested to contact the undersigned at the telephone number indicated below if the Examiner believes any issue can be resolved through either a Supplemental Response or an Examiner's Amendment.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for the timely consideration of this Amendment, or credit any overpayment to Deposit Account No. 13-4500, Order No. 1232-5285.

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Respectfully submitted,

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